

**REMARKS/ARGUMENTS**

Claims 14, 21-23, 27, 31-32, and 36-37 are currently being amended. Claims 1-13, 15-20, 28, and 35 have been cancelled. Claims 39-41 have been added. Thus, Claims 14, 21-27, 29-34, and 36-41 are now pending in this application. Applicant respectfully requests that the Examiner enter the amendments to the claims because there is no new matter. As a result, the amendments to the claims do not necessitate a new search.

In view of the amendments and the following remarks, Applicant respectfully requests reconsideration of the present application and submits that the application is in condition for allowance.

**I. Rejection of Claims Under 35 U.S.C. § 112, 1<sup>st</sup> Paragraph**

On page 5 of the Office Action, the Examiner rejected Claims 27 and 28 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The Examiner stated that there is no “support found in the specification” “to suggest the arm which the probe is mounted on can be one of the X, Y, or Z arms.” Applicant has amended Claim 27 to recite “the arm upon which the probe is mounted is the Z arm.” Further, Claim 28 has been cancelled rendering this rejection moot. Applicant respectfully submits that Claim 27 is now in condition for allowance and requests that the Examiner withdraw the rejection under 35 U.S.C. § 112, first paragraph.

**II. Rejection of Claims Under 35 U.S.C. § 112, 2<sup>nd</sup> Paragraph**

On pages 5-7 of the Office Action, the Examiner rejected Claims 14, 27, and 31 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

With respect to Claim 14, the Examiner states that “it is unclear if applicant intends for the probe pump and source of dilutant to be considered as elements of the invention. The elements ... are not positively recited as elements of the invention” and “[t]herefore, limitations

directed thereto are not considered further limiting ...." (Office Action, page 5). As suggested by the Examiner, Applicant has amended Claim 14 to recite "a source of dilutant" and "a probe pump." Applicant respectfully asserts that Claim 14 particularly points out and distinctly claims the subject matter which Applicant regards as the invention. Therefore, Applicant respectfully requests withdrawal of the rejection of Claim 14.

As to Claim 27, the Examiner states that "it is unclear which arm is being referenced by the phrase "the arm" in the last line." (Office Action, page 6). The Examiner also states that "it is unclear how the arms of the device interact to function with the probe." (Office Action, page 6). Claim 27 has been amended to recite "wherein the arm on which the probe is mounted is the Z arm." As suggested by the Examiner, Claim 27 has also been amended to recite that the Y arm "slides in the X direction" and the Z arm "slides in the Y direction." As a result, Applicant respectfully requests withdrawal of the rejection of Claim 27.

As to Claim 31, the Examiner states that the "claim is redundant for claim 14 previously states the injector valve is moveable between two positions." (Office Action, page 7). Claim 31 has been amended to recite that "the mobile phase forces the sample toward a sample analyzer when the controller alternates the injector valve into the injection position." Applicant respectfully asserts that Claim 14 does not recite this limitation. Therefore, Applicant respectfully requests withdrawal of the rejection of Claim 31.

### **III. Rejection of Claims 14, 21-22, 26, 29, 31-32, 36, and 38 under 35 U.S.C. § 102(b)**

In the Office Action, Claims 14, 21-22, 26, 29, 31-32, 36, and 38 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,858,450 to Jones (hereinafter 'Jones'). Applicant respectfully traverses this rejection.

On page 2 of the Office Action, the Examiner states that the wherein "clause of claims 14 and 37 recites functional language. There is no controller claimed so as to provide for the elements moving to perform the specific functions, therefore the specific action of the wherein clause is not considered further limiting of the device." Claim 14 has been amended to claim "a

controller operably coupled to the probe pump, the injector valve, and the pump valve, wherein the controller alternates the injector valve ... and alternates the pump valve ...." (emphasis added). Similarly, Claim 37 has been amended to claim "a controller, wherein the controller moves the pump valve ...." (emphasis added). Thus, Applicant is claiming a controller "so as to provide for the elements moving to perform specific functions." (Office Action, page 2). As a result, Applicant respectfully requests withdrawal of the rejection of Claim 14.

On pages 7-9 of the Office Action, the Examiner discusses Jones and its relationship to various elements of Claim 14. Examiner, however, fails to show any disclosure or teaching in Jones that corresponds with a pump valve as recited in claims 14 and 38. Claim 14, as amended, recites:

a controller operably coupled to the probe pump, the injector valve, and the pump valve, wherein the controller alternates the injector valve between a loading position and an injection position and alternates the pump valve between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample.

Claim 38 recites:

placing a pump valve into a rinse position automatically using a controller after forcing the liquid sample toward the sample analyzer.

Jones describes a "sampling, mixing and metering apparatus" (Col. 1, lines 67-68) including a "sampling head 12 [that] includes a valve mechanism 16 defined by first and second valve blocks 18 and 20 respectively, linearly movable (slidable) relative to each other between two valve positions, namely, a sampling position and a delivery position" (Col. 1, lines 1-3). Jones further describes "a sample pump 36 for withdrawing some of a liquid sample from the cup 24." (Col. 4, lines 20-23). Jones still further describes:

scavenge vacuum device 54 [that] extracts or evacuates most of the sample left in passageway 90 (and the probe 92 connected thereto) .... Also, the vacuum acting through the conduit 93 of pump 36 cooperates with the pressure supplied through valve 38 to pump 36 to return the same to its extracting position.

(Col. 8, lines 32-39). Thus, Jones describes a valve mechanism 16 that is movable between two positions, neither of which is to rinse the probe. Jones further describes a pump 36 that is movable to aspirate and to dispense a sample, but not to rinse the probe. Jones still further describes a vacuum device that extracts or evacuates, but does not rinse. Therefore, Jones fails to teach, suggest, or describe a pump valve alternateable “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claim 14. Jones similarly fails to teach, suggest, or describe “placing a pump valve into a rinse position automatically using a controller after forcing the liquid sample toward the sample analyzer” as required by Claim 38.

As a result, Jones fails to disclose, suggest, or teach all of the limitations of Claims 14 and 38. An anticipation rejection cannot properly be maintained where the references used in the rejection do not disclose all of the recited claim elements. Applicant respectfully traverses any arguments posed by Examiner relative to Claims 21-27, 29-34, 36, and 39-41 as they are allowable for at least the reasons outlined above relative to Claim 14. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 14, 21-27, 29-34, 36, and 38-41.

#### **IV. Rejection of Claims 14, 31-32, and 36 Under 35 U.S.C. § 102(b)**

In the Office Action, Claims 14, 31-32, and 36 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,551,557 to Rose et al. (hereinafter ‘Rose’). Applicant respectfully traverses this rejection.

On page 10 of the Office Action, the Examiner discusses Rose and its relationship to various elements of Claim 14. Examiner fails to show any disclosure or teaching in Rose that corresponds with a pump valve as recited in Claim 14. Rose describes a “random access print head for the transfer of microfluidic quantities of fluid.” (Abstract). Rose states that “[v]arious shut-off valves 25 and check valves (not shown) may also be used, as desired or needed, to direct the flow of fluid 14 to and/or from the reservoir 16, syringe pump 22 and dispenser 12.” (Col.

11, lines 49-52). Rose further describes that “the wash fluid reservoir 16 may be any one of a number of suitable receptacles capable of allowing the wash fluid 14, such as distilled water, to be siphoned into pump 22.” (Col. 12, lines 4-7). Thus, Rose describes a shut-off valve that is either on or off. Rose further describes a wash reservoir that siphons water into the pump 22, but not into the dispenser 12. Therefore, Rose fails to teach, suggest, or describe a pump valve alternateable “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claim 14.

As a result, Rose fails to disclose, suggest, or teach all of the limitations of Claim 14. An anticipation rejection cannot properly be maintained where the reference used in the rejection does not disclose all of the recited claim elements. Applicant respectfully traverses any arguments posed by Examiner relative to Claims 21-27, 29-34, 36, and 39-41 as they are allowable for at least the reasons outlined above relative to Claim 14. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 14, 21-27, 29-34, 36, and 39-41.

**V. Rejection of Claims 14, 26-28, 31-32, and 36 Under 35 U.S.C. § 102(e)**

In the Office Action, Claims 14, 26-28, 31-32, and 36 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application No. 2003/0099573 to Tseung et al. (hereinafter ‘Tseung’). Applicant respectfully traverses this rejection.

On pages 10-11 of the Office Action, the Examiner discusses Tseung and its relationship to various elements of Claim 14. Examiner fails to show any disclosure or teaching in Tseung that corresponds with a pump valve as recited in Claim 14. Tseung describes an “automated staining system.” (Abstract). Tseung states that the “bulk fluid dispensing tube 36 is capable of dispensing buffer solution from a buffer supply (not shown) delivered by supply line 41 or reagents delivered via supply lines 42 and 43 from internal bulk reagent supplies (not shown), as selected by a distribution valve 44.” (Paragraph [0031], emphasis added). Tseung shows

elements 56 and 57 in FIG. 4, but these elements are not mentioned in the specification. Tseung makes no other mention of a valve. Therefore, Tseung fails to teach, suggest, or describe at least a pump valve alternateable “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claim 14.

As a result, Tseung fails to disclose, suggest, or teach all of the limitations of Claim 14. An anticipation rejection cannot properly be maintained where the reference used in the rejection does not disclose all of the recited claim elements. Applicant respectfully traverses any arguments posed by Examiner relative to Claims 21-27, 29-34, 36, and 39-41 as they are allowable for at least the reasons outlined above relative to Claim 14. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 14, 21-27, 29-34, 36, and 39-41.

## **VI. Rejection of Claims 30, 33, and 34 Under 35 U.S.C. § 103(a)**

In the Office Action, Claims 30, 33, and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones. Applicant respectfully traverses this rejection because the Examiner has failed to present a *prima facie* case of obviousness. MPEP § 2143 states:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

At a minimum, as discussed in Section III above, the Examiner has failed to demonstrate that Jones discloses, teaches, or suggests all of the claim limitations as recited in Claims 30, 33, and 34. Jones fails to teach at least the pump valve as required by Claim 14. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 30, 33, and 34 which depend from Claim 14.

**VII. Rejection of Claims 23 and 33 Under 35 U.S.C. § 103(a)**

In the Office Action, Claims 23 and 33 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of U.S. Patent No. 4,957,009 to Nohl et al. (hereinafter ‘Nohl’). Applicant respectfully traverses this rejection because the Examiner has failed to present a *prima facie* case of obviousness. At a minimum, the Examiner has failed to demonstrate that Jones and Nohl in combination disclose, teach, or suggest all of the claim limitations as recited in claims 23 and 33. As discussed in Section III above, Jones fails to teach at least the pump valve as required by claim 14.

Nohl describes “a pushloop liquid sampling method.” (Abstract). Nohl further describes:

First, as shown in FIG. 2A, three way valve 42 is switched so as to connect the reservoir 44 of flush solvent to syringe 32. Plunger 33 of syringe 32 is withdrawn so as to pull a small amount of flush solvent, typically 3  $\mu$ L, into syringe 32. The amount of flush solvent pulled by the plunger 33 must be enough to account for backlash in the drive mechanism 45 for syringe 32.

Second, in FIG. 2B, three way valve 42 is switched so syringe 32 is connected to transport tubing 46. Six port valve 30 is in the “INJECT” position. The three-way valve 42 is closed so the flush reservoir 44 is no longer connected to syringe 32. The plunger 33 is withdrawn so as to pull a small air bubble 48 into needle 50. Then sample vial 52 is lifted into the sample tower 34.

Third, in FIG. 2C, the desired amount of sample 54 (such as 30  $\mu$ L for a 10  $\mu$ L injection) is drawn out of sample vial 52 by further withdrawing plunger 33. Sample 54 is preceded by air bubble 48.

(Col. 18, lines 24-25). Thus, Nohl aspirates a flush solvent and in the next step aspirates the sample so that the solvent and the sample are separated by an air bubble. The sample is then dispensed. Therefore, Nohl fails to teach a pump valve alternateable “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claim 14. As a result, neither Jones nor Nohl disclose, suggest, or teach all of the limitations of Claim 14. An

obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 23 and 33 which depend from Claim 14.

**VIII. Rejection of Claims 23-25 Under 35 U.S.C. § 103(a)**

In the Office Action, Claims 23-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of U.S. Patent No. 4,942,018 to Munk (hereinafter 'Munk'). Applicant respectfully traverses this rejection because the Examiner has failed to present a prima facie case of obviousness. At a minimum, the Examiner has failed to demonstrate that Jones and Munk in combination disclose, teach, or suggest all of the claim limitations as recited in Claims 23-25. As discussed in Section III above, Jones fails to teach at least the pump valve as required by Claim 14.

Munk describes “[s]olvent composition gradients in high performance liquid chromatography.” (Abstract). Munk further states:

Solvent A 24 can be metered into the bed by the graduated syringe 42. .... Because the system is closed except for the fill and drain ports ..., the amount of solvent A 24 introduced will displace an equal amount of solvent B 30 from the drain port 40b (assuming there is no change in volume upon mixing the two solvents).

(Col. 6, lines 38-47, emphasis added). Thus, Munk teaches use of a valve to control mixing of solvents. Munk fails to teach at least a pump valve alternateable “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claim 14. As a result, neither Jones nor Munk disclose, suggest, or teach all of the limitations of Claim 14. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of Claims 23-25 which depend from Claim 14.

**IX. Rejection of Claims 27 and 28 Under 35 U.S.C. § 103(a)**

In the Office Action, Claims 27 and 28 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of U.S. Patent No. 6,656,724 to Heimberg et al. (hereinafter ‘Heimberg’). Claim 28 has been cancelled rendering this rejection moot. Applicant respectfully traverses the rejection with respect to Claim 27 because the Examiner has failed to present a *prima facie* case of obviousness. At a minimum, the Examiner has failed to demonstrate that Jones and Heimberg in combination disclose, teach, or suggest all of the claim limitations as recited in Claim 27. As discussed in Section III above, Jones fails to teach at least the pump valve as required by Claim 14.

Heimberg describes “a pipette apparatus.” (Abstract). Heimberg further describes:

pipette tip is connected via a thin tube 21 to two pumps 22, 23. The pump 22 is a syringe pump for precise microdispensing (1  $\mu$ l) whereas the second pump 23 is a wash pump having a greater thruput (e.g.  $\geq$ 100 ml/min) than the syringe pump 22 and is used for washing the pipette tip 20.

(Col. 3, lines 20-25). Heimberg makes no mention whatsoever of a valve. Therefore, Heimberg fails to teach at least a pump valve alternateable “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claim 14.

As a result, neither Jones nor Heimberg disclose, suggest, or teach all of the limitations of Claim 14. An obviousness rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of Claim 27 which depends from Claim 14.

**X. Rejection of Claims 27, 28 and 37 Under 35 U.S.C. § 103(a)**

In the Office Action, claims 27, 28, and 37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones and further in view of U.S. Patent No. 4,422,151 to Gilson

(hereinafter ‘Gilson’). Claim 28 has been cancelled rendering this rejection moot. Applicant respectfully traverses this rejection with respect to Claims 27 and 37 because the Examiner has failed to present a *prima facie* case of obviousness. At a minimum, the Examiner has failed to demonstrate that Jones and Gilson in combination disclose, teach, or suggest all of the claim limitations as recited in Claims 27 and 37.

Claims 14 recites:

a controller operably coupled to the probe pump, the injector valve, and the pump valve, wherein the controller alternates the injector valve between a loading position and an injection position and alternates the pump valve between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample.

Claim 37 recites:

a controller, wherein the controller moves the pump valve between a first position where the probe pump is operable to dispense and to aspirate a sample through the probe, and a second position where the probe pump communicates with the source of dilutant for rinsing the probe after the injector valve loads the sample and injects the sample toward the sample analyzer.

As discussed in Section III above, Jones fails to teach at least the pump valve as required by Claim 14. For similar reasons, Jones fails to teach the pump valve as required by Claim 37.

Gilson describes “a liquid handling apparatus.” (Abstract). Gilson further describes that “[t]his power source may be utilized to control an auxiliary pinch valve.” (Col. 5, lines 67-68). Gilson makes no other mention of a valve of any kind. Therefore, Gilson fails to teach at least a pump valve alternateable “between a first position where a sample can be aspirated and dispensed through the probe and a second position where the probe can be rinsed via communication between the probe pump and the source of dilutant after the injector valve loads the sample and injects the sample” as required by Claims 14 and 37. As a result, neither Jones nor Gilson disclose, suggest, or teach all of the limitations of Claims 14 and 37. An obviousness

rejection cannot be properly maintained where the references used in the rejection do not disclose all of the recited claim elements. Therefore, Applicant respectfully requests withdrawal of the rejection of Claim 27 which depends from Claim 14 and the rejection of Claim 37.

For the foregoing reasons, it is submitted that all of the claims that have been examined in this application should be in condition for allowance. No additional search by the Examiner is required because the amendments to the claims include no new matter. The limitation of "a controller" added to claims 14 and 37 was added at the suggestion of the Examiner to clarify the claimed subject matter.

Respectfully submitted,

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